Scarcity and its Implications

API 5100 Economics for Public Management and Policy

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Free trade can imply important adjustment costs

There are distributional consequences, particularly in the "short" term

- Billy Bragg is a British folk singer and writer with roots in the early punk music scene of the late 1970s. But, as the biography on his web site says, after "seeing how the Conservative government of Margaret Thatcher was changing the fabric of British society, particularly with the decimation of the mining communities, Bragg's songs became more overtly political. He became a fixture at political rallies and benefits, particularly during the 1984 Miners Strike."
- One of his songs, "NPWA" (No Power Without Accountability) could be an anthem for the anti-globalization movement
  - Billy Bragg sings NPWA: `http://www.youtube.com/watch?v=dkyNCV_Wvz0`

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Free trade can imply important gains to material well-being

There are long run gains to trade implying it is a "win-win" policy

The strong majority of economists would strongly disagree with the perspective offered by Bragg and other critics of free trade

- One survey of professional economists in the United States found that 93% would agree with the claim that restrictions on free trade through tariffs and import quotas would reduce economic welfare

Many economists would suggest that critics of free trade are looking at the issue with a blind spot

Can we understand the differences in the underlying logic of these two perspectives?

Is there something in the economic method—which can legitimately lay claim to being scientific—that also blinds its practitioners to what others see so clearly?

Three objectives for today's class

1. understand the concept of scarcity and the nature of choice
   - this also offers clarity on one definition of economics: as the science addressing allocation of resources
   - but it also clarifies some fundamental concepts: opportunity costs, and marginal reasoning
2. understand the logic of "comparative advantage"
   - continue our discussion of escaping the poverty associated with the Malthusian trap in order to introduce the idea of a "production function"
   - examine Ricardo's argument on the gains to trade
3. expand Ricardo's model to understand distributional consequences of free trade
   - discuss a factor-specific model of trade
   - understand the limitations of "comparative statics"

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An economic aspect to choice

scarcity implies making choices, that is accepting a trade-off between alternatives

- this has an economic aspect when four conditions are met
  1. there is more than one "desire"
  2. it is possible to consistently rank these multiple goals
     - if $A \succ B$, and $B \succ C$ then $A \succ C$
     - this is what we mean by "rational" choice
  3. time and other resources must be "limited"
     - in a comparative, not an absolute, sense
  4. these resources have alternative uses

Opportunity costs describe the trade-offs

If we have multiple objectives, if our desires exceed our resources, then given that the resources can be used in different ways, it matters how we allocate them—it matters because our goals differ in their significance.

Opportunity costs describe the trade-offs

We have to make "choices", achieving one goal means having to give up another.

This is what we mean by facing an "opportunity cost"

- an opportunity cost is the value of the next best alternative
- it covers both direct and indirect costs
- it describes the relationship between alternative choices

In a perfectly competitive market prices reflect these relative scarcities

- there are no absolute values

Lionel Robbins (1935)

An Essay on the Nature and Significance of Economic Science

According to Robbins, this is what we mean by an opportunity cost:

> *"Every act which involves time and scarce means for the achievement of one end involves the relinquishment of their use for the achievement of another. It has an economic aspect." (page 14)*

Lionel Robbins (1935)

An Essay on the Nature and Significance of Economic Science

It leads to a famous definition of the subject in terms of methods used (as opposed to the substantive issues of interest):

> *"The economist studies the disposal of scarce means. He is interested in the way different degrees of scarcity of different goods give rise to different ratios of valuation between them and he is interested in the way in which changes in ends or changes in means—from the demand side or the supply side—affect these ratios. Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative use." (page 16)*

Three major lessons or decision rules

The challenge we face in doing this is to get the most out of the trade-offs that we have to make, to maximize the extent to which we can simultaneously pursue our competing goals, to decide in a way that puts us right on the cutting edge of those trade-offs and does not waste any opportunity to make the most out of the situation.

1. to maximize our benefit in the context of scarcity we pursue a particular objective until Marginal Benefit = Marginal Cost
2. do not confuse this with Average Benefit = Average Cost
3. let "bygones be bygones", that is sunk costs should not play a role in optimal decision making

Economic reasoning is not always appropriate

Economic reasoning will not play a role in public policy if the issue is not one of scarcity

- Human rights, defined as civil and political rights, might be interpreted as not meeting the four conditions that characterize scarcity
- For example, political and civil rights to which the *Universal Declaration on Human Rights* considers everyone to be entitled
  - these include: rights to life, liberty, and security—prohibiting slavery, servitude, the slave trade, torture and cruel, inhuman, or degrading treatment or punishment—rights to a fair trial, freedom from arbitrary arrest, and rights to freedom of movement, privacy, and freedom of thought and religion as well as rights to political participation

Economic reasoning is not always appropriate

1. Rights of this sort are considered "universal and indivisible": they are absolute and non-conflicting.
   - we might interpret this as suggesting there is no preferential ranking among them: some of these rights are not held with more importance than others
2. The duty required by the state is often considered a "negative" duty, an obligation to refrain from an action
   - we might interpret this as suggesting that the resources required are in comparative abundance: in the extreme no resources are required to refrain from undertaking an activity so that negative duties can be performed simultaneously without being limited by scarce resources

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Economic reasoning is not always appropriate

It would seem that the implementation of political and civic rights is not an exercise in trade-offs: it does not entail an opportunity cost.

- if a right of this sort is compromised it is a matter of adjudication, the duty holder is made accountable through the law

But in other cases economic reasoning is appropriate

When the issue is one of scarcity then economic reasoning is appropriate

- Human rights, defined as economic and social rights, do meet the four conditions that characterize scarcity
- Consider the *International Covenant on Economic, Social, and Cultural Rights* and other covenants like, for example, the *Convention on the Rights of the Child*, which recognize the right of everyone to health care, education, and an adequate standard of living
  - these conventions entail "positive duties", an obligation to undertake an action
  - in some cases the conventions are very specific on actions that governments must undertake

But in other cases economic reasoning is appropriate

As an example consider Article 13 of the *International Covenant on Economic, Social, and Cultural Rights*, which addresses the right to education.

The States Parties to the present Covenant recognize that, with a view to achieving the full realization of this right:

(a) Primary education shall be compulsory and available free to all;

(b) Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the progressive introduction of free education;

(c) Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education;

(d) Fundamental education shall be encouraged or intensified as far as possible for those persons who have not received or completed the whole period of their primary education;

(e) The development of a system of schools at all levels shall be actively pursued, an adequate fellowship system shall be established, and the material conditions of teaching staff shall be continuously improved.

But in other cases economic reasoning is appropriate

The conditions of scarcity would now seem to be applicable:

1. a government is faced with multiple goals
   - with respect to the well-being of children versus other groups
   - with respect to the different rights any one group of individuals is deemed to hold
   - with respect to the priorities within any given set of rights
2. These goals require resources. In undertaking these positive duties does the government allocate resources to:
   - pensioners or to children?
   - to alleviating poverty or to improvements in education?
   - to primary education or to higher education?

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Economic reasoning accepts the validity of these rights as an expression of a social goal, but not as a method to attain them.

- "the adoption of legislative measures" may be necessary or not, but it is certainly not sufficient
- in the face of multiple goals and limited resources passing a law does not fulfill a positive duty immediately and for everyone
- these goals still require the design of effective and sustainable programs

But in other cases economic reasoning is appropriate

Here is an excerpt from a document published by the United Nations Development Program that is meant to be a guide for policy makers:

> *Studies have traditionally shown that the rate of return on public investment in primary education is higher than on post-primary schooling. Government and donors have a limited amount of funds available to support the education sector. If new studies would to [sic] show that post-primary education yields higher returns, would they make a difference?*
>
> *The market logic would re-direct funds toward higher levels of education, as this provides the highest rate of return. The human rights-based logic, on the other hand, would be unaffected by these results. Government has the responsibility—the International Covenant on Economic, Social and Cultural Rights (article 13)—to respect, protect and fulfil the right to basic education. The article states, "Primary education shall be compulsory and available free for all". Hence, the results of the new studies would not really matter as to the priority objective. Primary education is a fundamental right and entitlement; it would keep the highest level of priority focused on basic education even if the rate of returns to such public investment would be lower than other options.*
>
> *(UNDP 2003, page 9 Box 3, emphasis in the original)*

Two policy directions

- the significance of economic analysis is not to question the underlying goals a society may set, but rather to objectively asses how these goals can be best achieved
- investment in education is often seen as central element in promoting individual well-being and economic growth
- this is part of the first strategy to escape the Malthusian trap
    - to invest the surplus, rather than consume it, in things that increase productivity and reduce population growth
- this requires us to introduce a second "good" into our model, and when we do that we allow the possibility of trade, and this is the second strategy for increasing wealth

The production function

our original model was in effect a depiction of the "labour market"

- this is a "factor" market, a market in which the resources used to produce the output is exchanged
- this contrasts with a "goods" market, a market in which the final output is exchanged for other consumption goods
- in a factor market firms are the buyers, but in a goods market they are the sellers

our marginal benefit and marginal cost curves are in effect demand and supply curves, and the model solved for the wage rate and the amount of labour services used

- but it also solved for the total output produced
- the relationship between the amount of input used and the output produced is called the production function

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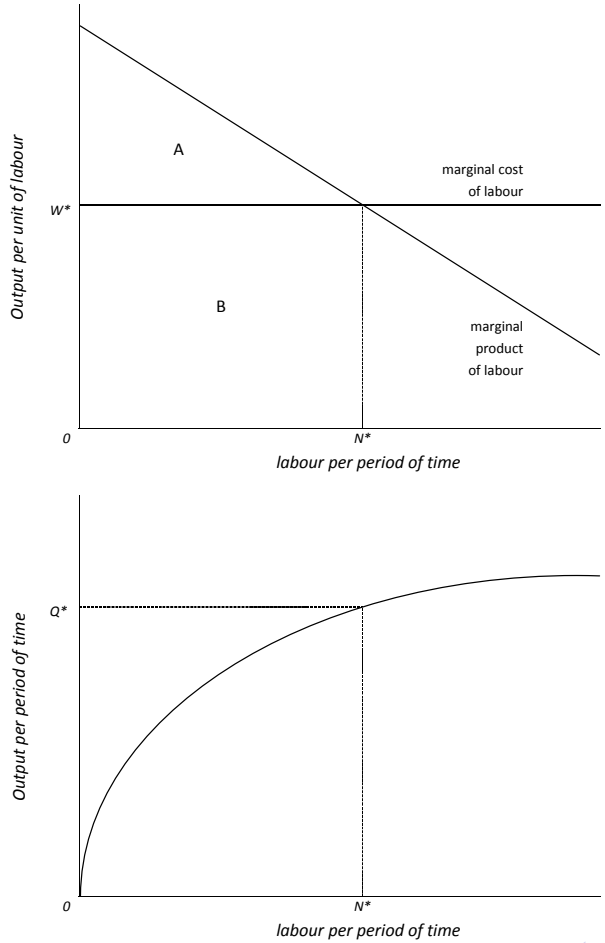
The labour market and the production function
in a one-good model



The production function and capital accumulation

One way out of the poverty trap is to take some of the surplus, or use some foreign aid, and invest it in another factor of production—"capital"

- "physical capital" refers to a number of different things
  - machinery and equipment, infrastructure
- but there are also other types
  - notably "human capital"—the health, nutrition, skills of the labour force—but also natural capital, and public and institutional capital

The production function and capital accumulation

The act of "investment" presumes that a third type of actor has entered the model: an entrepreneur or a "capitalist"

- this actor is future orientated
- a low discount rate, or access to resources that permits risk taking

Investment increases the productive capacity of the society, it shifts the production function "up"

- with the same amount of labour society is able to produce more
- these gains will accrue to labour if investment in human capital also changes behaviour

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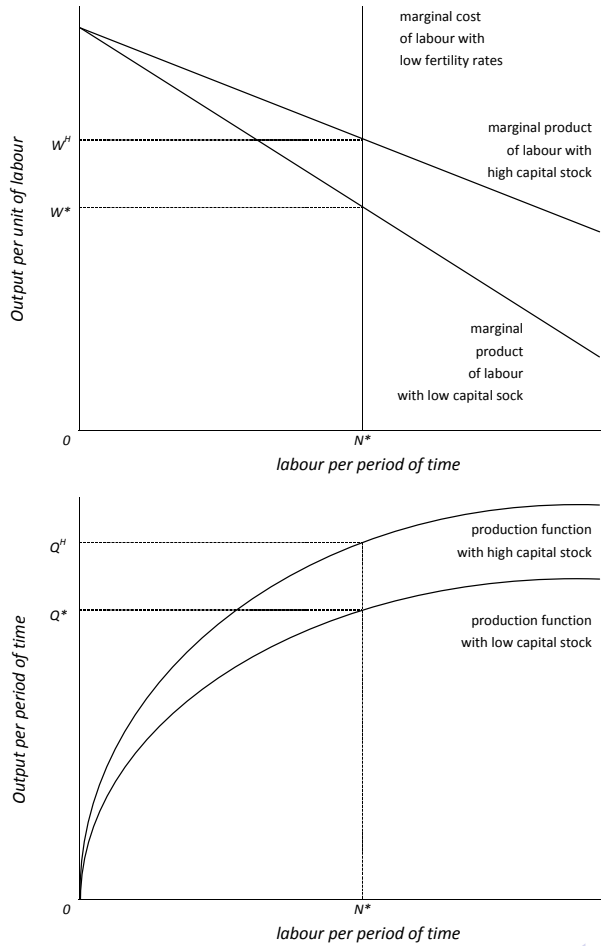
Human capital and labour supply

Investment in human capital not only increases the productivity of labour, but it also influences labour supply—particularly so if investment is in women's education and skills. With more human capital women will:

- engage more productively in the labour market
- this increases their productivity in market activities relative to non-market (family) activities
- they earn income and this raises bargaining power in the household
- further having a child has a higher opportunity cost in foregone earnings
- fewer children involves more investment in the quality of children rather than in the quantity
- fertility rates fall, population levels stabilize, and income per person rises as labour becomes relatively scarce

The labour market and production function

with investments in physical and human capital



Next steps

A vicious circle has been turned into a virtuous circle

- as time goes on more investment leads to more productivity and continued outward shifts in labour demand
- if this happens at a faster pace than labour supply growth it leads to higher wages and a rising living standard

But this also implies there is more than one good in the economy

- we have, say, an agricultural product and a manufactured goods
- but where does the later come from?
    - either the population makes it on its own, or it gets it from other countries by trading for it

So we have to confront another important public policy question:

- would this society be better off under autarky or under international trade?

Basic concepts as a starting point

The case for free trade rests upon a logic derived from scarcity, opportunity costs, and marginal reasoning

- but we apply this to a two-good model
- with two goods there is the possibility of exchange, of trade
- are there gains to be had from trade? In other words, can we make the surplus greater by engaging in trade?

Ricardo as the starting point

On the Principles of Political Economy and Taxation (1817)

Ricardo made a strong argument about the advantages of free trade at a time that it was a politically charged issue

> *Under a system of perfectly free commerce, [Ricardo wrote,] each country naturally devotes its capital and labour to such employments as are most beneficial to each. This pursuit of individual advantage is admirably connected with the universal good of the whole. By stimulating industry, by rewarding ingenuity, and by using most efficaciously the peculiar powers bestowed by nature, it distributes labour most effectively and most economically: while, by increasing the general mass of productions, it diffuses general benefit, and binds together by one common tie of interest and intercourse, the universal society of nations throughout the civilized world. It is this principle which determines that wine shall be made in France and Portugal, that corn shall be grown in America and Poland, and that hardware and other goods shall be manufactured in England. (pages 133-34)*

Historical backdrop

1. The Napoleonic wars, and the disruption to trade that they implied.
2. The aftermath and the political power of the land owners
3. Ricardo and the repeal of the "corn laws"

Natural "endowments" as the basis for comparative advantage

The Ricardian model explains trade by differences in relative productivities that arise from differences in "natural" endowments

- it is not clear as to where these differences originate
- often taken to be the result of geography and climate
- but they can be created, as discussed in the textbook

Two countries trade with each other because they are different in these endowments

- this is reflected in differences in labour productivity
- as a result the countries face different opportunity costs of producing the goods they are interested in consuming

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Ricardo's example

On the Principles of Political Economy and Taxation (1817)

Ricardo offers an example to make his argument, but it is set up in a very particular way.

> *England may be so circumstanced, that to produce the cloth may require the labour of 100 men [yes men again!] for one year; and if she attempted to make the wine, it might require the labour of 120 men for the same time. ... To produce the wine in Portugal, might require only the labour of 80 men for one year, and to produce the cloth in the same country, might require the labour of 90 men for the same time. (page 135)*

Labour required to produce one unit of output

in Ricardo's two good, two country, one factor model of international trade

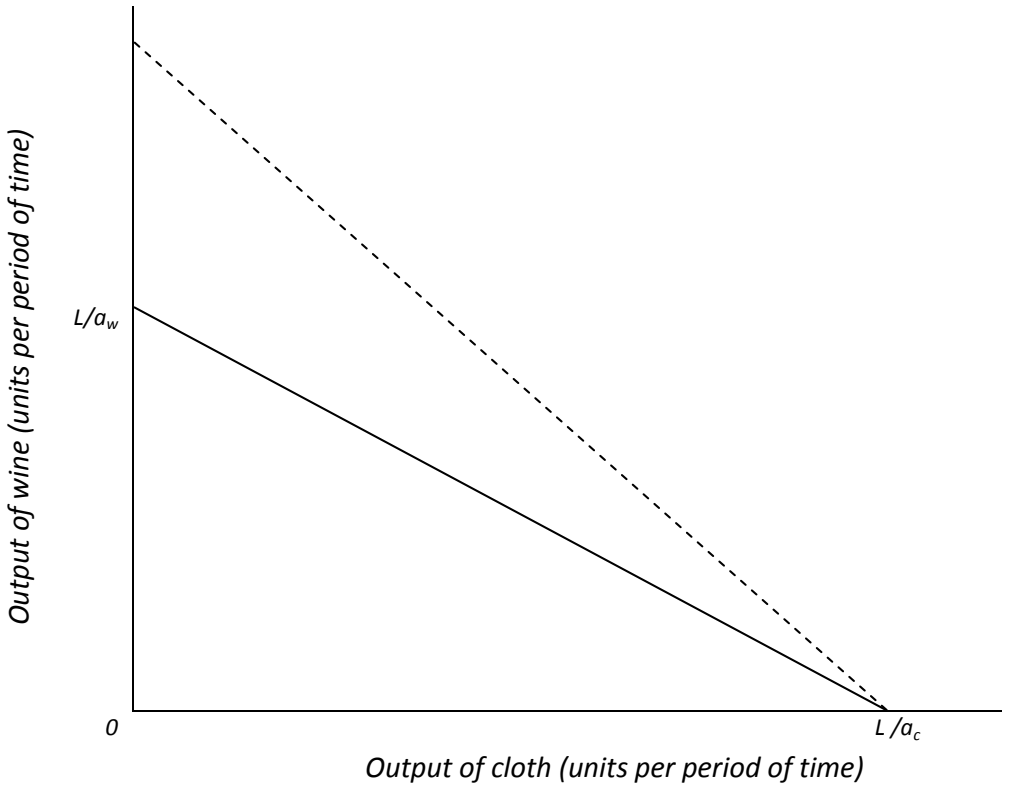
Even with a configuration of labour productivity of the sort illustrated it will be mutually advantageous for the two countries to specialize production and engage in trade. Why?

	Portugal	England
wine	80	120
cloth	90	100

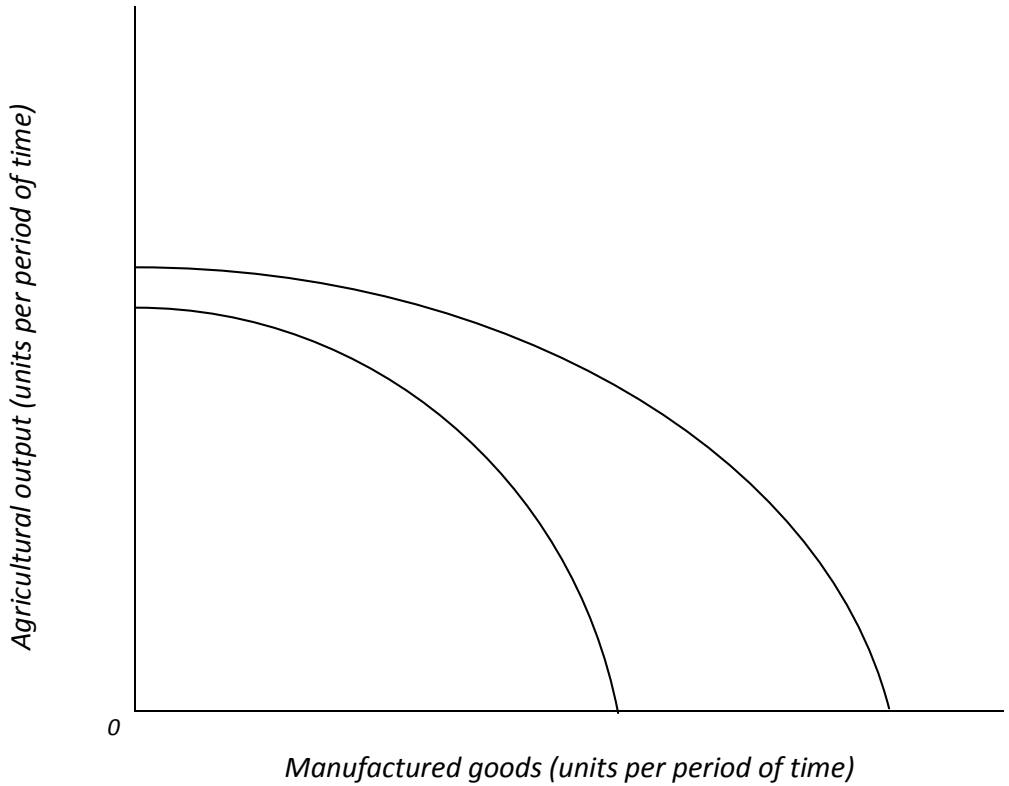
Absolute advantage versus comparative advantage

1. absolute advantage
   - involves a comparison of pairwise productivities across the two countries
2. comparative advantage
   - involves a comparison of the ratios of productivities across the two countries
   - that is, a comparison of the opportunity costs

Production possibility frontier
with linear technology and with international trade



Production possibility frontier
with diminishing returns and with growth



A two good specific factors model

Ricardo's model uses only one factor to illustrate the principle of comparative advantage, and the positive sum nature of trade

- the "landlords" are assumed away
- distributional issues can't be addressed
- but this is what the public policy debate was about

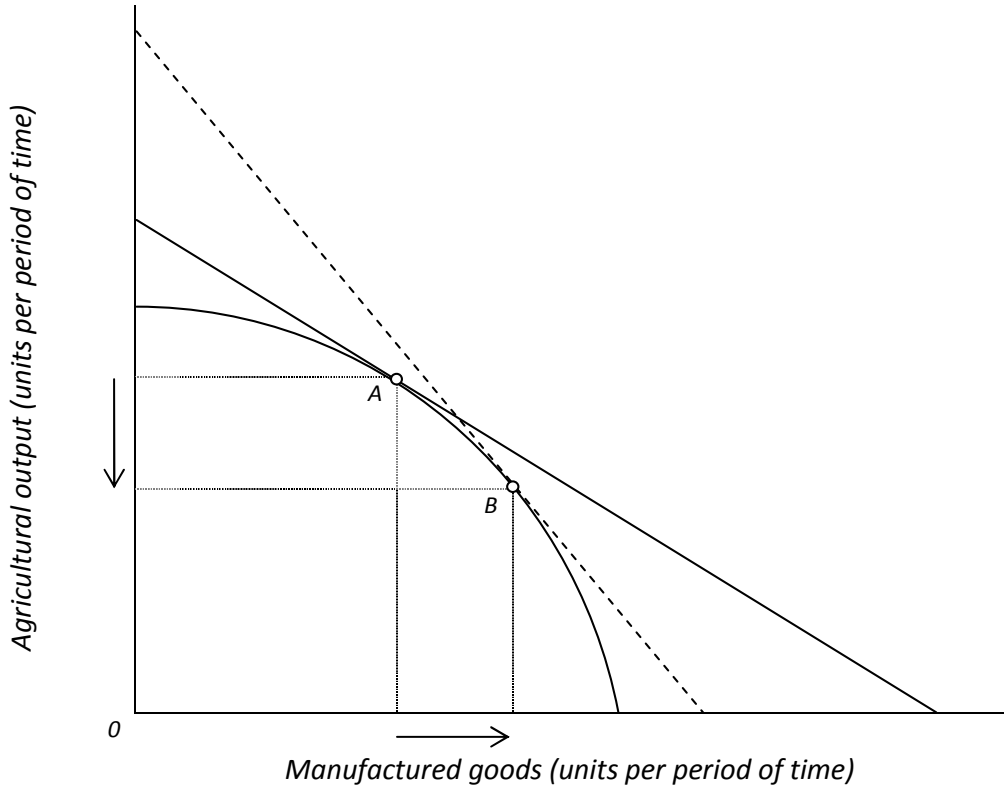
Every policy change involves winners and losers

- sometimes the change can increase welfare to the point that the winners could easily compensate the losers
- sometimes losses are heavily concentrated and losers have an incentive to engage in political activities to block the changes, while at the same time the benefits are diffuse so that the winners don't face the same incentives

Comparative Statics

a methodology that involves a comparison of two equilibria

It is not an exercise in real, historical, time that charts out a process of change. There are adjustment costs associated with making the actual change.



Summary

- The first main message of this talk in one or two lines.
- The second main message of this talk in one or two lines.
- Perhaps a third message, but not more than that.

- Outlook
  - What we have not done yet.
  - Even more stuff.